



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/790,946

03/02/2004

George Suwala

36765

2173

26327

7590

05/13/2008

THE LAW OFFICE OF KIRK D. WILLIAMS

PO BOX 61538

DENVER, CO 80206-8538

EXAMINER

ALIA, CURTIS A

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

05/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/790,946	<b>Applicant(s)</b> SUWALA ET AL.	
	<b>Examiner</b> Curtis A. Alia	<b>Art Unit</b> 2616	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11, 13-18 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-18 and 20-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment filed 11 February 2008 has been entered. Claims 12 and 19 have been cancelled, claims 11, 13-14, 17-18 and 20 have been amended, and claims 23-24 have been added. Claims 1-11, 13-18 and 20-24 are still pending in this application, with claims 1, 11 and 18 being independent.

### ***Response to Arguments***

1. Applicant's amendment to the § 112 rejected claims have overcome the rejections, and the § 112 rejections are therefore withdrawn.
2. Applicant's arguments filed 11 February 2008 have been fully considered but they are not persuasive.

In response to applicant's argument regarding Finn's failure to teach the action of registering with the detector, the examiner respectfully disagrees. The act of registering with the detector (or APS processor of a node as taught by Finn) by a protector (or other node as taught by Finn) would have been broadly interpreted by one of ordinary skill in the art at the time of the invention to include connecting and sharing information regarding the connectivity and reachability of the node with the detector, as is taught by Finn (see column 15, lines 29-35, the APS processor receives network topology information from each node in the network so as to accurately create working and protection routing tables, also see column 17, lines 33-40). This act of connecting and exchanging information as being equivalent to the registration of claims 1,

Art Unit: 2616

2-5 and 8-10 is sufficient to establish a proper prima facie rejection since it would have been easily understood by one of ordinary skill in the art at the time of the invention.

In response to applicant's arguments regarding Lindskog's failure to teach a first protector attempting to protection switch, and in response to a failure of such, to notify the second protector, the examiner respectfully disagrees. Lindskog teaches that after a fault is detected (the fault is a node failure, in particular the failure of a node as taught in Finn), the node's fault agent determines if correction of the fault (in the case of Finn, this is performing protection switching) can be handled at its location (the first protector attempting to perform protection switching itself), and if the node's fault agent determines that it cannot handle the fault (the first protector cannot perform the protection switching), then it passes the alarm data to another node for attempting to handle the fault (notifying the second protector of the condition). The act of determining if correction of the fault (protection switching) can be handled is equivalent to the act of attempting to perform protection switching. Thus, Lindskog teaches the act of attempting to protection switch at the first protector, and in response to a failure of such, to notify the second protector, as combined with the teachings of Finn.

The above-mentioned arguments are also reflected in the 102 and 103 rejections cited below.

***Claim Rejections - 35 USC § 102***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-2, 4-5, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Finn et al. (previously cited US Patent No. 6,728,205).

Regarding claim 1, Finn discloses an apparatus comprising a detector (see Figure 1, APS processor 14) and a first protector (see Figure 1, Protection Switching Module 18) configured to perform protection switching in response to one or more notifications of a condition received from the detector (see column 42, line 54 to column 43, line 4, failure message arrival at a node indicating a failed link), and to register with the detector to be notified of the condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes), wherein the detector is configured to receive one or more registration requests from the first protector (see column 15, lines 29-35, APS processor receives information concerning the number of nodes to acquire the network topology, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes), and to notify the first protector of the condition upon detection of the condition (see column 15, lines 57-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path, and see column 40, lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).

Regarding claim 2, Finn discloses that the protection switching includes switching the physical path of traffic from a working facility to a backup facility while maintaining an UP state indication of a single logical interface including the working facility and the backup facility such that higher-level routing information does not change in response to the switching the physical path (see column 15, lines 10-13, only predetermined logical connections are made between the nodes, meaning that pre-established logical source-destination connections are decided on during setup and are maintained while physical paths are switched after a failure).

Regarding claim 4, Finn also discloses that the protection switching includes switching traffic to a backup component from a component corresponding to the condition (see column 15, lines 58-65, after a node failure, the flow is re-routed through a secondary path (and ultimately secondary components) to reach the destination uninterrupted).

Regarding claim 5, Finn discloses that the apparatus further comprising a second protector (see Figure 1, other network nodes 12b-12e, each comprising a protection switching module), wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector (see column 42, line 67 to column 43, line 4, a node forwards the failure message to other nodes along the paths corresponding to that node), and to register with the first protector to be notified of a particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, each node's APS processor does this, as the topology for the network is stored in each node's

Art Unit: 2616

routing table), wherein the first protector is configured to receive one or more registration requests from the second protector (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, each node's APS processor does this, as the topology for the network is stored in each node's routing table, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes), to notify the second protector upon notification of the particular condition (see column 42, line 67 to column 43, line 4, a node forwards the failure message to other nodes along the paths corresponding to that node), and to register with a detector to be notified of the particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes to acquire the network topology), wherein the detector is configured to identify the particular condition, and to notify the first protector of the particular condition upon detection of the particular condition (see column 15, lines 57-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path, and see column 40, lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).

Regarding claim 8, Finn discloses that the apparatus further comprising a second protector (see Figure 1, item 12b), wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector and the detector (see column 43, line 67 to column 44, line 4), to register with the first protector

Art Unit: 2616

to be notified of a particular condition and to register with the detector to be notified of a second particular condition (see column 15, lines 29-35, each node is a protector, and each node must register with all other nodes so that every node has the proper topology in the routing table), wherein the first protector is configured to send a notification of the particular condition to the second protector in response to the notification of the particular condition by the detector (see column 42, line 67 to column 43, line 4, a node forwards the failure message to other nodes along the paths corresponding to that node), and register with the detector to be notified of the particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes), and wherein the detector is configured to receive one or more registration requests from the first and second protectors (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes), to notify the first protector upon detection of the particular condition, and to notify the second protector upon detection of the second condition (see column 15, lines 57-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path, and see column 40, lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).



***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finn in view of Zettinger et al. (previously cited US 2004/0085895).

Regarding claim 3, Finn does not explicitly teach that the protection switching includes switching traffic to a backup facility from a facility corresponding to the condition.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Zettinger. In particular, Zettinger teaches that the same protection switching that occurs on the switch level can be done on a facility level (see paragraph 27, lines 1-8, facility protection switching is when entire protection switch fabrics are protection switched).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Zettinger, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Zettinger, since Zettinger stated that switching every node in a facility would take far longer than the 50ms switching time as required in communication networks like those using SONET.

7. Claims 7 and 9-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finn in view of Lindskog et al. (previously cited US 6,665,262 B1).

Regarding claim 7, Finn discloses that the apparatus further comprises a second protector (see Figure 1, other network nodes 12b-12e, each comprising a protection switching module) wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector (see column 42, line 67 to column 43, line 4, a node forwards the failure message to other nodes along the paths corresponding to that node), and to register with the first protector to be notified of a particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, each node's APS processor does this, as the topology for the network is stored in each node's routing table, thus the reachability of the second protector is known by the first protector), wherein the first protector is configured to receive one or more registration requests from the second protector (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, each node's APS processor does this, as the topology for the network is stored in each node's routing table, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes) and the detector is configured to identify the particular condition, and to notify the first protector of the particular condition upon detection of the particular condition (see column 15, lines 57-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path, and see column 40,

lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).

Finn does not explicitly teach that the first protector is configured to notify the second protector upon notification of the particular condition if not previously notified of another particular condition else not to notify the second protector of the particular condition.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the first protector is configured to notify the second protector upon notification of the particular condition if not previously notified of another particular condition else not to notify the second protector of the particular condition, and to register with the detector to be notified of the particular condition (see column 3, lines 27-35, when the node receives alarm data notifying the node of a fault (presumably a new alarm, i.e. not previously notified), it will pass a new alarm to an interconnected node to handle the fault, else it may pass it back up to a higher level node, thus not forwarding it to the interconnected node).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 9, Finn discloses a second protector (see Figure 1, item 12b), wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector (see column 42, line 67 to column 43, line 4, node

Art Unit: 2616

forwards the failure message to other nodes), and to register with the first protector to be notified of a particular condition, wherein the first protector is configured to receive one or more registration requests from the second protector, and to register with the detector to be notified of the particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes), wherein the detector is configured to identify the particular condition and to notify the first protector of the particular condition upon detection of the particular condition (see column 15, lines 58-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path, and see column 40, lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).

Finn does not explicitly teach that the first protector is further configured to attempt to protection switch upon notification of the particular condition, and in response to the attempted protection switch failing, notifying the second protector of the particular condition, else not notifying the second protector of the particular condition.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the first protector is further configured to attempt to protection switch upon notification of the particular condition, and in response to the attempted protection switch failing, notifying the second protector of the particular condition, else not notifying the second protector of the particular condition. (see column 3, lines 28-32,

fault agent determines if the underlying fault that caused the alarm can be handled at the current node (interpreted as attempting to handle the fault, the fault handling being the protection switching of a failed link/node in Finn).if not the fault agent produces a new alarm...and passes the new alarm to an interconnected fault agent (the second protector)).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 10, Finn discloses the apparatus of claim 1, further comprising a second protector and a third protector (see Figure 1, items 12b and 12c, each node acts as a protector), wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector (see column 42, line 67 to column 43, line 4, node forwards the failure message to other nodes), and to register with the first protector to be notified of the condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes), wherein the third protector is configured to register with the second protector to be notified of the condition (see column 15, lines 29-35, APS processor of each node receives information concerning the number of nodes, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes), wherein the second protector is configured to receive one or more registration requests from the third protector (see

column 15, lines 29-35, APS processor of each node receives information concerning the number of nodes, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes).

Finn does not explicitly teach that the first protector is configured to determine whether to cause a protection switch or to notify the second protector of the condition, the third protector is configured to perform protection switching in response to one or more notifications received from the second protector, and the second protector is configured to determine whether to cause a protection switch or to notify the third protector of the condition.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the first protector is configured to determine whether to cause a protection switch or to notify the second protector of the condition, the third protector is configured to perform protection switching in response to one or more notifications received from the second protector, and the second protector is configured to determine whether to cause a protection switch or to notify the third protector of the condition (see column 3, lines 28-38, each node comprises a fault agent that is capable of making a decision as to whether it can fix the fault in the network, and if it cannot, then it forwards an alarm message to its interconnected nodes, and they repeat this operation until the fault is recovered from, and thus teaches the multiple redundancy performed by the second and third protectors).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog

stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 11, Finn discloses an apparatus comprising a detector configured to detect a particular condition and to notify a first protector of the particular condition (see Figure 1, APS processor 14 is a detector), and the first protector configured to receive an indication of the particular condition from the detector (see column 40, lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).

Finn does not explicitly teach that the first protector is configured to identify whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition for the second protector to perform the protection switching, and the second protector is configured to receive a notification of the particular condition from the first protector, and in response to perform protection switching based on the particular condition and that identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes attempting by the first protector to protection switch, and in response of the protection switch, to notify the second protector of the particular condition

However, the above-mentioned claimed limitations are well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the first protector is configured to identify whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition for the second protector to perform the

Art Unit: 2616

protection switching, and the second protector is configured to receive a notification of the particular condition from the first protector, and in response to perform protection switching based on the particular condition (see column 3, lines 28-34, each node comprises a fault agent that is capable of making a decision as to whether it can fix the fault in the network, and if it cannot, then it forwards an alarm message to its interconnected nodes, and they repeat this operation until the fault is recovered from) and that identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes attempting by the first protector to protection switch, and in response of the protection switch, to notify the second protector of the particular condition (see column 3, lines 26-32, a node comprises a fault agent that is capable of making a decision as to whether it can fix the fault in the network, and if it cannot fix or recover from the fault, then it passes a new alarm message to another node to perform the same operation).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 13, Finn does not explicitly teach that identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes referencing a data structure to identify whether a second particular condition has been previously identified by a detector.



However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes referencing a data structure to identify whether a second particular condition has been previously identified by a detector (see column 3, lines 56-60, when an event generator receives information from each node regarding the fault alarm, it collects this data and updates the fault information in an event database, thus allowing nodes to check whether another node has looked at a specific fault).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 14, Finn does not explicitly teach that identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes referencing a data structure to identify whether a second particular condition is determined based on a fixed or programmed set of rules or user configuration commands.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular

Art Unit: 2616

condition includes referencing a data structure to identify whether a second particular condition is determined based on a fixed or programmed set of rules or user configuration commands (see column 4, lines 5-10, after each node returns information to the event generator, the event generator then sends the updated configuration information to any subsequent node that is determining whether it can handle the fault, thus dynamically changing the rules for determination at each node).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 15, Finn discloses that the detector is further configured to detect a second particular condition and to notify the second protector of the second condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes). The detector can detect more than one condition and send a notification of a condition to all nodes affected by the condition.

Regarding claim 16, Finn does not explicitly teach that the second protector is configured to identify whether to perform protection switching itself based on the second particular condition or to notify a third protector of the second particular condition for the third protector to perform protection switching.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the second protector is configured to identify whether to perform protection switching itself based on the second particular condition or to notify a third protector of the second particular condition for the third protector to perform protection switching (see column 3, lines 28-34, each node comprises a fault agent that is capable of making a decision as to whether it can fix the fault in the network, and if it cannot, then it forwards an alarm message to its interconnected nodes, and they repeat this operation until the fault is recovered from).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 17, Finn does not explicitly teach that identifying whether to perform protection switching itself based on the second particular condition or to notify a second protector of the second particular condition is determined based on a fixed or programmed set of rules or user configurable commands.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that identifying whether to perform protection switching itself based on the second particular condition or to notify a second protector of the second particular condition is determined based on a fixed or programmed set of rules or user

configurable commands (see column 4, lines 5-10, after each node returns information to the event generator, the event generator then sends the updated configuration information to any subsequent node that is determining whether it can handle the fault, thus dynamically changing the rules for determination at each node).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 18, Finn discloses an apparatus comprising a detector including means for detecting a particular condition (see Figure 1, APS processor detects a condition on the network from that node or a link connected thereto), and means for notifying a first protector of the particular condition (see column 15, lines 58-65), the first protector including means for receiving an indication of the particular condition from the detector (see column 15, lines 57-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path), and the second protector including means for receiving a notification of the particular condition from the first protector and means for performing protection switching based on the particular condition (see column 42, line 67 to column 43, line 4, node forwards the failure message to other nodes).

Finn does not explicitly teach that the first protector includes means for identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition for the particular condition to perform protection switching and that the means for identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes means for attempting by the first protector to protection switch and in response to failure of the protection switch, to notify the second protector of the particular condition.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the first protector includes means for identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition for the particular condition to perform protection switching (see column 3, lines 56-60, when an event generator receives information from each node regarding the fault alarm, it collects this data and updates the fault information in an event database, thus allowing nodes to check whether another node has looked at a specific fault) and that the means for identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes means for attempting by the first protector to protection switch and in response to failure of the protection switch, to notify the second protector of the particular condition (see column 3, lines 26-32, a node comprises a fault agent that is capable of making a decision as to whether it can fix the fault in the network, and if it cannot fix or recover from the fault, then it passes a new alarm message to another node to perform the same operation).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 20, Finn does not explicitly teach that the first protector includes means for identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes means for referencing a data structure to identify whether a second particular condition has been previously identified by a detector.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the first protector includes means for identifying whether to perform protection switching itself based on the particular condition or to notify a second protector of the particular condition includes means for referencing a data structure to identify whether a second particular condition has been previously identified by a detector (see column 3, lines 56-60, when an event generator receives information from each node regarding the fault alarm, it collects this data and updates the fault information in an event database, thus allowing nodes to check whether another node has looked at a specific fault).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog

stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 21, Finn discloses that the detector includes means for detecting a second particular condition and means for notifying the second protector of the second condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes). The detector can detect more than one condition and send a notification of a condition to all nodes affected by the condition.

Regarding claim 22, Finn does not explicitly teach that the second protector includes means for identifying whether to perform protection switching itself based on the second particular condition or to notify a third protector of the second particular condition for the third protector to perform protection switching.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Lindskog. In particular, Lindskog teaches that the second protector includes means for identifying whether to perform protection switching itself based on the second particular condition or to notify a third protector of the second particular condition for the third protector to perform protection switching (see column 3, lines 28-34, each node comprises a fault agent that is capable of making a decision as to whether it can fix the fault in the network, and if it cannot, then it forwards an alarm message to its interconnected nodes, and they repeat this operation until the fault is recovered from).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Lindskog, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Lindskog since Lindskog stated that the recursive way that alarm messages are passed down the hierarchy distributes the work each node has to do to recover from the fault.

Regarding claim 23, Finn discloses that the first protector is configured to register with the detector for notification of the particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, column 15, lines 44-52, the information received from all of the nodes is stored into the routing table for computing the working and protection topologies).

Regarding claim 24, Finn discloses that the second protector is configured to register with the first protector for notification of the particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, column 15, lines 44-52, the information received from all of the nodes is stored into the routing table for computing the working and protection topologies, this occurs at every node, thus the second protector will notify the first protector about its topology as a form of registration).



8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finn in view of Ikeda et al. (newly cited US 6,144,633).

Regarding claim 6, Finn discloses that the apparatus further comprises a second protector (see Figure 1, other network nodes 12b-12e, each comprising a protection switching module) wherein the second protector is configured to perform protection switching in response to one or more notifications received from the first protector (see column 42, line 67 to column 43, line 4, a node forwards the failure message to other nodes along the paths corresponding to that node), and to register with the first protector to be notified of a particular condition (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, each node's APS processor does this, as the topology for the network is stored in each node's routing table, thus the reachability of the second protector is known by the first protector), wherein the first protector is configured to receive one or more registration requests from the second protector (see column 15, lines 29-35, APS processor receives information concerning the number of nodes, each node's APS processor does this, as the topology for the network is stored in each node's routing table, and column 17, lines 34-40, each node transmits its topology information to all the other nodes, which can be interpreted as registering its position and connectivity in the network with the other nodes) and the detector is configured to identify the particular condition, and to notify the first protector of the particular condition upon detection of the particular condition (see column 15, lines 57-65, information concerning the nodes and links and preferred paths among nodes stored in routing table can be accessed and used to re-route automatically the signals through the secondary or protection path, and see column 40,

lines 40-50, upon detection of a failure a help message is broadcast to the nodes in the network to inform them to perform protection switching where needed).

Finn does not explicitly teach that the first protector is configured to notify the second protector upon notification of the particular condition if previously notified of another particular condition else not to notify the second protector of the particular condition, and to register with the detector to be notified of the particular condition.

However, the above-mentioned claimed limitation is well known in the art, as evidenced by Ikeda. In particular, Ikeda teaches that the first protector is configured to notify the second protector upon notification of the particular condition if previously notified of another particular condition else not to notify the second protector of the particular condition, and to register with the detector to be notified of the particular condition (see column 25, lines 30-40, if the equipment (first protector) is already performing switching on the protection line needed (was previously notified of another condition), the request is passed through while continuing to switch the previously switched information via an overlap bridge request (forwarding the request to a second protector)).

In view of the above, having the apparatus of Finn, then given the well-established teaching of Ikeda, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the apparatus of Finn as taught by Ikeda since Ikeda stated that high speed transmission can be realized while still maintaining large network tables that carry important network status/failure information.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis A. Alia whose telephone number is (571) 270-3116. The examiner can normally be reached on Monday through Friday, 9am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. Regarding more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Curtis A Alia/  
Examiner, Art Unit 2616  
5/5/2008

/Aung S. Moe/  
Supervisory Patent Examiner, Art Unit  
2616

CAA